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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,715	11/15/2001	Ernest R. Siler	DP-305919	3513

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EXAMINER	
WILLIAMS, THOMAS J	
ART UNIT	PAPER NUMBER
3683	

DATE MAILED: 03/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/001,715	SILER ET AL.	
	Examiner	Art Unit	
	Thomas J. Williams	3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☒ Claim(s) *14-18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 7-11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,112,610 to Welling.

Re-claim 1, Welling discloses a ball-nut assembly, comprising: a ball nut 10 with a radial slot 12, the nut has an outer surface defining a first portion, a ledge 30b is radially recessed for the first portion and partially bounds the through slot 12, an undercut wall 30a connects the ledge and the first portion; a crossover member 13 has a flange 37 and/or 38 supported by the ledge 30b and a crossover groove 26, the flange 37 and/or 38 defines a deformed portion contacting the undercut wall 30a of the ball nut. The flange is deformed during assembly of the ball nut and crossover member, see column 4 lines 15-29.

Re-claim 2, the ledge has an annular shape, see figure 4, it surrounds the slot and supports the flange.

Re-claim 3, the undercut wall has axially opposing first and second end portion, defined as opposite points in the slot, the deformed portion includes first and second deformed portions 38, each deformed portion contacts a corresponding first and second end portion.

Re-claim 4, the first portion has a cylindrical shape, see figures 3 and 5.

Re-claim 5, the crossover member has a flat outward facing surface disposed below the first portion of the outer surface of the ball nut. The crossover member is provided with a recess or well 34 having a flat surface below the first portion.

Re-claim 7, Welling discloses a ball-nut assembly, comprising: a ball nut 10 or N includes an inside helical groove 11, a radial slot 12, the nut has an outer surface defining a first portion, a ledge 30b is radially recessed for the first portion and partially bounds the through slot 12, an undercut wall 30a connects the ledge and the first portion; a crossover member 13 has a flange 37 and/or 38 supported by the ledge 30b and a crossover groove 26, the flange 37 and/or 38 defines a deformed portion contacting the undercut wall 30a of the ball nut; a ball screw S includes an outside helical groove 18, the ball screw is disposed in the ball nut; a plurality of balls B contact the crossover grooved portion and a portion of the inside and outside helical grooves.

Re-claim 8, the ledge has an annular shape, see figure 4, it surrounds the slot and supports the flange.

Re-claim 9, the undercut wall has axially opposing first and second end portion, defined as opposite points in the slot, the deformed portion includes first and second deformed portions 38, each deformed portion contacts a corresponding first and second end portion.

Re-claim 10, the first portion has a cylindrical shape, see figures 3 and 5.

Re-claim 11, the crossover member has a flat outward facing surface disposed below the first portion of the outer surface of the ball nut. The crossover member is provided with a recess or well 34 having a flat surface below the first portion.

Re-claim 13, Welling discloses a method of making a ball-nut assembly, comprising:

obtaining a ball nut N with a radial slot 12 and an outer surface defining a first portion, a ledge 30b recessed from the first portion, and an undercut wall 30a connecting the ledge and first portion; obtaining a crossover member 13 having a flange 37 and/or 38 and a crossover groove 26; disposing the crossover member form outside the ball nut to have the flange supported by the ledge and the crossover grooved portion 26 disposed in the through slot 12, see figures 3 and 5; deforming the flange creating a staked portion of the flange which contacts the undercut wall of the ball nut. The step of deforming the flange in Welling occurs during the insertion stage. The staked portion is defined as a means of securing the crossover member to the ball nut. This is a seen as immediately occurring after the crossover member is inserted into the slot. The deformable sidewalls and flange are received in the recessed groove defined by the ledge and undercut wall.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welling.

Welling teaches that ball nut assemblies are widely used in a variety of mechanisms fro providing axial movement. However, Welling fails to specifically teach the use of the ball nut in a vehicle brake system or motor driven system. The examiner takes official notice that the use of ball nut assemblies in vehicle brake systems and motor driven systems is well known in the art, and as noted by the applicant in the background of the invention. It would have been obvious to one of ordinary skill in the art to have utilized the ball nut assembly of Welling in a motor driven system or vehicle brake system, thus providing either system with a means of axially movement.

Allowable Subject Matter

6. Claims 14-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Brown et al. (US 5,937,700) teaches a crossover member having deformable braces. Yoshioka et al. (US 6,439,338) teaches a crossover member having walls deformed after insertion, the crossover member is inserted into a slot from inside the ball nut. FR 2,703,122 teaches a crossover member having deformable walls.

8. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Thomas Williams whose telephone number is (703) 305-1346.

The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder, can be reached at (703) 308-3421. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7687.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

TJW

March 13, 2003

THOMAS WILLIAMS
PATENT EXAMINER

Thom. Wm
AU 3683
3-13-03